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ORIGINAL ARTICLES.

OPHTHALMIA ALBUMINURICA.

BY S. POLLAK, M. D., ST. LOUIS.

There is much in a diagnostic name which will surprise the reader, who may intuitively express a doubt as to its correctness. This surprise and doubt cannot be greater than my own. I refrained from making it until after many days of careful and assiduous observation, the conclusion forced itself upon me. In active ophthalmic practice, both clinical and private, of one-third of a century, I never met a parallel case, nor could I find one similar to it in the literature, whether foreign or domestic, within my reach.

Two of my esteemed colleagues saw the case with me, unfortunately not early enough, when the peculiar features were very demonstrative and unmistakable, but which they had to take on trust from me. When they were related to them in the presence of Clara's very intelligent mother, they both acknowledged never having seen any case just like it, or met with it in their readings.

I am fully prepared for, and earnestly invite the critical

judgement of, the active and intelligent workers in the field. A total loss of sight was manifest at my very first visit, a fatal result to her life, was once seriously apprehended, which, however, was happily averted.

I shall now proceed to give briefly the history of the case.

January 2, I was called to see Clara Harris, aged 7 years, the oldest child of very healthy parents, a bright and favored pupil of the public schools. She had enjoyed perfect health until the day after Christmas. It happened that her mother took her to a church to see a richly illuminated Christmas tree, the church was densley packed so that she could not get farther than the ninth or tenth pew from the door. This was the coldest night of this winter, the temperature ten degrees below zero. Clara was well enough wrapped, but the constant opening and closing of the door made her feel cold. She slept well that night, but next morning she asked her mother to let her sleep a little longer. She remained in bed that day and also the next day, complaining of being tired. Thursday, the third day, she cried out: "Mamma, the house is on fire." The mother tried to quiet her, but she insisted "the house is on fire; don't you see everything looks red?" She became restless, had some fever and a slight cough. The family physician, a very able man, was sent for. He saw her diligently for several days. He thought the hallucination was probably caused by some meningeal irritation. She grew worse, fever increased, but no more hallucinations. Not until Monday, the second of January, was it noticed that though she did not open the eyes, she shielded them always from the light. The lids were forcibly separated, and the physician saw at once that the eyes were seriously implicated. He directed that an oculist be sent for. I saw her Monday after dark; found temperature 103, pulse 112, tongue very coated, the buccal cavity filled with glary, tenacious mucus, which she in vain tried to expectorate. It had to be literally drawn out in long streaks by means of dry cotton or a piece of cloth, which was immediately consigned to the fire. This had to be repeated nearly every five minutes. There were no deposits left on the tonsils and fau-

ces. . She could breathe and swallow without trouble; no cough. Thirst great, appetite none, bowels constipated, abdomen not tender nor tympanitic. Urine scant, skin dry. After this general examination, the condition of the eyes was looked into. The lids looked normal, she could but would not open them, but when I separated them I recoiled. *I saw only a perfectly chalky white globe, resembling nothing so much as the opening boll of a cotton plant*; cornea and sclerotic both perfectly white alike, the line of demarcation between them obliterated, a slight polish of the cornea made the only distinction. Not the smallest bloodvessel was seen. Conjunctiva moveable, not chemosed; tension normal, ball rather anæsthetic. No trace of the iris to be seen. The anterior chamber seemed to be filled with a white homogeneous substance, whether fluid or semi-solid indeterminable, neither was it certain that the parenchyma of the cornea was not involved. Motions of the eye unaffected, but there *was not the least perception of light.* The anæsthesia of the eye and of the surroundings rendered handling them easier. Yet, with all this, there was photophobia, for she always wanted to have the lamp removed. The same condition in both eyes alike. I was very much at a loss about the diagnosis. I only knew that she was totally blind, but whether from an organic disease of the eye or from a metastasis of some strongly saturated opaque fluid, and that what of and where from, I could not tell. She complained only of the trouble which the ever recurring accumulation of tenacious mucus in the buccal cavity gave her, which provoked slight cough, nausea, and the absolute necessity of drawing it out.

While a diagnosis had to be left in abeyance I had to institute therapeutic measures, partly with the object of giving relief and partly to arrive thereby at a diagnosis.

I ordered bathing the eye with absorbent cotton dipped in *hot* water every hour, which she seemed to like and called for often. Instilled into the eye atropine sulph., gr. iv to ℥j; one drop hourly until I could get a sight of the pupil. *Internally*, a triturate of calomel gr. $^1/_{10}$ every hour, rincing the mouth with strong solution of boracic acid. She slept well that night,

even the regular application of the above treatment did not rouse her. For the next two days the condition and the treatment was unchanged. Thursday, I learned that her bowels had been freely moved, and the buccal mucorrhœa was considerably less, but temperature yet 100, pulse 96. The mother also succeeded in furnishing me with some urine voided during the night, which on testing showed specific gravity 1024, was very acid, and on boiling a large quantity of albumin coagulated, so that on cooling nearly one inch of it remained in the test tube.

The albuminous urine furnished the first clue for a reasonable understanding of the case. I inferred therefrom that the exposure on Christmas night to a temperature of ten degrees below zero, caused an *acute nephritis and general albuminuria*, which by metastasis found a suitable soil in the eye, saturated strongly the aqueous humor and, perhaps made deposits of albumin on the tissues of the eyes. I made no change in the local treatment but suspended the triturates of calomel, and substituted the following:

℞ Acetate of Potassium, - - - ℥ss.
Tr. of Digitalis, - - - - ℥j.
Water, - - - - - ℥iij.
M.
Sig. Dessertspoonful every two hours.

The effect of this change of treatment was promptly manifested by the lowering of the sp. gravity of the urine, diminution of of the albumin, and of the acid. On the other hand a notable increase in the quantity of urine, also an abundant perspiration set in. Not until Jan. 12, the tenth day of my attendance, did I discern the slightest change about the eyes. That day the chalky white cornea of the right eye became opalescent at the apex. This portion became even translucent the next day. This gradual clearing up from the center to the periphery of the cornea progressed with every succeeding day, until the pupillary margin of the iris came in view. The same clearing up process now commenced also in the other eye, and kept it up in proper ratio, so that in about two weeks both corneæ

were clear and the pupils dilated ad maximum, and yet not the least perception of light. The ophthalmoscope disclosed an opaque fundus; optic papilla and retinal vessels were not discernable. The external aspect of the eyes was normal, except mydriatic pupils.

In the meantime the general health had greatly improved. Temperature, pulse and respiration normal. The mucorrhœa and albuminuria entirely subsided. Her physical condition good, except the total absence of sight, and no change in the fundus of the eyes. I substituted now:

℞ Bichloride hydrarg., - - - - gr. j.
Potassi iodide, - - - - ℥ss.
Water, - - - - - - ℥vj.
M.
Sig. Teaspoonful every four hours.

I hoped thereby to effect the absorption of a probable albuminous deposit on the retina and other tissues of the eye. I made daily ophthalmic tests, both with direct and oblique illumination, but always with negative results.

Up to February 10 the condition of the eyes remained stationary, but a most unexpected change now set in, and the disease in both eyes assumed a new phase. That day, the conjunctiva of the right eye became hyperæmic,not chemosed, and the eye lachrymated a good deal; the pupil became smaller, though still under the use of mydriatics, the balls seemed to protrude, and for the first time she complained of bulbar, circumorbital and occipital pains. The pupil of the left eye became oblong, the anterior chamber very shallow, the capsule of the lens opalescent, but no pain. The motility of either eye somewhat impaired. All these symptoms were more intensified the next day, especially the protrusion of the right eye. This new inflammatory process was a painful surprise to me. My expectations of regaining a moderate amount of sight were always very feeble, and these were ended now. Panophthalmitis had set in in the right eye, and to save the form of it or even her life became now a paramount question.

I will here mention that Dr. Wolfner, who had just returned from a year's visit to the great clinics of Europe, saw her with me,and stated that he never saw a case like it, nor did his reading acquaint him with one, as he wrote me a few days later. My friend Dr. Alt also accompanied me to see this extraordinary case when the characteristic whiteness had totally disappeared, and declared he never saw or read of one parallel to it. The prominent symptoms at that day were entirely different, as if they were those of another patient with no relation to what I dealt with so long. It presented now a clear *painful panophthalmitis*, with high tension, considerable exophthalmus, with a yellowish white glistening fundus, limited motility, high temperature, rapid pulse, with life in danger. A glioma of the retina, or a retrobulbar tumor seemed to be present. Enucleation of the eye was considered indicated in order to save life. The intelligent mother yielded to the suggestion. I removed the eye, aided by my clinical assistant Dr. Keene, and gave it to Dr. Alt for microscopic and bacteriological examination. He preserved it in Mueller's solution for hardening.

My health was somewhat impaired in consequence of an attack of the grippe in January. I had to go South, to Cuba. On my return in April, I went to see little Clara, found her up and about, enjoying perfect health. The hyperæmia of the left eye, which also threatened to become like its mate, had subsided, but she is totally blind with a cataractous lens, distorted pupil and posterior synechia.

Having given a faithful and succinct history of this very strange case, I now appeal to the enlightenment and experience of the medical profession for a free and candid expression of their views on the following points:

1. Am I correct in crediting the exposure to the intense cold of Christmas night with causing the acute nephritis and rapidly ensuing albuminuria?

2. Was it ever known that amblyopia would develop in three days after any other cause but traumatism? I take it that Clara's statement that everything in the room looked *red* was an

actual fact, not a hallucination. It is known that a slight hæmorrhage in the vitreous body will cause a red reflex to every object in the field of vision, which does not subside until complete absorption of the blood has taken place.

3. Am I coincided with in ascribing the chalky white appearance of the cornea to the metastasis of albumen into the aqueous humor, and not into the parenchyma of the cornea? The eyes never exhibited any phenomena of inflammation nor redness, pain and swelling, yet she was totally blind, without an appreciable organic change.

4. The adage "*post hoc ergo propter hoc*" was proven in this case. In proportion as the quantity of albumin in the urine decreased, and micturation and activity of the skin increased, the density of the opacity of the cornea diminished, and when the urine became clear, transparency of the cornea ensued.

5. Was the subsequent advent of panophthalmitis in the right eye a mere coincidence, or the result of a new inflammatory process, or was it due to the agglutinated condition caused by the presence of albuminous deposits?

6. Did the timely enucleation of the right eye save the left eye from a destructive sympathetic ophthalmia? for from that moment not only the left eye but the general health commenced to improve rapidly.

7. Will I be credited with having described a faithful and not an exaggerated picture of the case? Those who know me will vouch for it, but with the large majority, to whom I am a stranger, a doubt might arise on that score.

I am also aware that this report is not made in a standard classical style, but I trust it bears the stamp of honesty and truth in every line of it.

CROUPOUS IRIDOCHOROIDITIS.

Remarks to Dr. S. Pollak's Case.—Results of the Histological Examination.

BY ADOLF ALT, M. D., ST. LOUIS.

On February 11, 1893, I saw C. H., with Dr. Pollak. She was then considerably emaciated and weak. There was fever and the pulse was somewhat fast and small. There was some exophthalmus. Photophobia rendered the illumination of the eyes very irksome to the patient. There was a great deal of episcleral injection of the eyes. The corneæ were clear. The right eye showed a large, irregular pupil, behind which a partially dim lens was seen. Iris and lens were almost pressed against the cornea by a yellow lobulated substance. V.=0; tension increased. The condition of the left eye differed but immaterially from the right one and its tension was not as high. The possibility of glioma having attacked both eyes was discussed, and the higher tension of the right eye prompted the decision of its enucleation. The chief point, if there was no glioma, was to find an explanation for the clinical symptom of the cotton-ball-like appearance of the eyes at an earlier period, as described by Dr. Pollak.

When the well hardened eyeball was opened, no tumor presented itself, and what appeared behind the lens was seen to be the totally detached retina firmly united with cyclitic newformations. The posterior chamber is totally obliterated; that portion of the anterior chamber which corresponds to the iris-angle is filled with a uniformly transparent gelatinous substance, while in the pupillary area the lens lies close to the cornea and obliterates this portion of the anterior chamber.

The space between the solid strand of the detached retinal tissue, which runs from the optic nerve forward to the cyclitic membrane, and the swollen choroid and also the suprachoroidal space, are filled with congealed exudation. Upon the inner surface of the choroid yellowish masses are deposited in thick layers and in smaller lumps. These masses are thicker near the ciliary body than in the posterior portions.

Microscopically the changes are peculiar in the uveal tract only. The iris and ciliary body are so filled with round cells that their normal tissue is almost invisible. The choroid is many times its normal thickness. Its inner parts (choriocapillary layer) are made up solely of round cells, which are severed from the exudation lying inwardly by the lamina vitrea. Its outer parts (venous layer) and the suprachoroidal tissue and space are filled with a *network of fibrine* containing the remnants of the normal tissues and round cells. This peculiar network reaches forward on the outer surface of the choroid and the ciliary body to the insertion of the latter into the corneo-scleral tissue.

This condition resembles closely that found in the lungs in croupous pneumonia, and the spongy exudation in the anterior chamber seen in some cases of iritis. The latter I described years ago, and considered it as the result of a *hæmorrhagic* iritis, as the iris was filled with hæmorrhages in the case I had examined microscopically. Dr. S. M. Burnett afterwards called the iritis with spongy exudation into the anterior chamber *croupous* iritis. In the case under consideration a croupous cyclitis and choroiditis still existed when the eyeball was enucleated. I think, therefore, that it is not too far-fetched to explain the strange clinical aspect, described by Dr. Pollak, as produced by spongy (croupous) exudation in both anterior chambers due to *croupous iridochoroiditis.* When I saw the case this exudation, as it always does, had melted away and had been mostly absorbed. There were, also, no hæmorrhages visible.

I do not remember ever having seen such a general croupous inflammation of the uveal tract in man.

I have seen it, however, as the result of the experimental injection of jequirity infusion into rabbit's eyes, corresponding in all its details to the condition of the eye under consideration. (See this Journal, Vol. I, No. 4, page 97, et ss.). The croupous membrane produced by jequirity on the conjunctiva looks microscopically exactly like it.

In retinæ with albuminuric retinitis due to chronic nephritis a similar croupous exudation is often found lying in small cavities within the retinal tissue. In the eye under consideration the retina, however, is free from any such exudation.

In order to study the bacteriological side of the question both Dr. L. T. Riesmeyer and I stained with methyline blue and after Gram's method, a considerable number of specimens taken from the yellow masses which were deposited upon the inner side of the choroid. I also stained in the same manner a number of sections of the tissues of the eye. In all of these specimens we found micrococci. They are, however, more numerous in the exudations than in the tissues, yet I found them also in the tissue of the choroid. These micrococci are usually arranged in clusters, and do not seem to differ from the staphylococcus pyogenes aureus. Besides these clusters a large number of cocci lie singly or in small groups of three or four disseminated through the exudation. I have found none in the other tissues of the eyeball.

From the history of the case it would then seem that we had to deal with a *croupous nephritis* and a *croupous iridochoroiditis*, perhaps both due to the immigration of the same microbe, which in the eye resembles most to the staphylococcus pyogenes aureus.

Choroiditis with spongy exudation has been clinically seen once by Knapp. I do not know that it has ever been histologically described in man.

SOCIETY PROCEEDINGS.

AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.

The Value of Voltaic Alternatives in Optic Nerve Atrophy.

Charles Eugene Riggs, A.M., M.D., Professor of Nervous and Mental Diseases in the University of Minnesota, St. Paul Minn., Member of the Neurological Association, Member of the American Electro-Therapeutical Association, read the following paper:

My attention was first called to the value of voltaic alternatives in atrophy of the optic nerve by Dr. Webster Fox, of Philadelphia, who said that he had obtained from their use some results so surprising that he hesitated to publish them because of the incredulity with which he felt they would be received by the profession.

This strong recommendation from so eminent a man resolved me to make trial of them in my own practice should occasion arise, but for some time I was deterred from the habitual use of them by the fact that in the ordinary instruments the only way of alternating the currents is by the hand, which is not only tiresome in the extreme, but also undesirable as the frequent use of the commutator in this manner renders the battery unreliable for careful diagnostic work. Also in using the hand the precision of the make and break will necessarily vary a little; consequently there will not be the same smoothness of current as though the action was automatic. To remedy this defect I requested Dr. H. E. Waite to construct for

me an automatic commutator, which has proved satisfactory in every way.

I first tried the voltaic alternatives upon a patient sent to me by Dr. Graham, of Minneapolis. He reported that when first examined he found the media clear, hyperæmia of the optic disc, with outlines slightly blurred, veins slightly enlarged and tortuous, arteries reduced. The treatment before the use of the voltaic alternatives had been iron, quinine and strychnia, with no improvement resulting. After the use of voltaic alternatives had begun she improved very slowly, by almost imperceptible degrees. She was under this treatment for two or three months, and examinations made in the meantime by Dr. Graham showed unquestioned improvement in the eye condition. At the end of this period she was obliged to leave the city, but wrote me at the end of six months that the improvement had been continuous and was still going on.

For the next case that I treated I was indebted to the courtesy of Dr. E. H. Wood, of St. Paul. I subjoin the report of the case as taken from Dr. Wood's notes.

J. W., aged 52, farmer. July 25, 1891. Says six months ago eyesight began to fail and 'everything looked milky.' No pain in head or eyes.

Examination: Vision in right and left eye, counts fingers at ten feet; not improved by glasses. Cornea clear, tension normal. Pupil acts to light and accommodation. Ophthalmoscope shows both optic discs very pale, medium-sized physiological cup, bloodvessels medium-sized, vitreous clear and rest of fundi normal. No history of injury or syphilis. Says memory is getting very poor and that he often forgets what he came to town for. Has numbness of legs and arms, spastic contraction of fingers, no ankle-clonus, but there is increased knee-jerk in right and diminished in left leg. Diagnosis, atrophy of optic nerve. Treatment: Elix. cinch., ferri et strychniæ, hypodermic injections of strychnia in temples and electricity, also doses of potassium iodide.

Aug. 14, R. V.=$^{6}/_{XXXVI}$. L. V.=$^{6}/_{LX}$.

Aug. 27, R. V.=$^{6}/_{XXIV}$+1.5 D.=$^{6}/_{IX}$. L. V. $^{6}/_{XXXVI}$, not improved by glasses. Patient returned home.

My examination of the man demonstrated the existence of nervous trouble, indicated by the symptoms Dr. Wood had observed. The result of the use of voltaic alternatives in this case was most astonishing.

After the first week's treatment the patient declared himself decidedly improved, and the improvement was rapid and continuous while he remained under my care. That the improvement was permanent is witnessed by the subjoined note of Dr. Wood, who made a special re-examination of the case for the purpose of this paper a few weeks ago.

"Sept. 4, 1892.—Examined him and found that he had been working most of the time; said memory continued good, numbness and spastic contraction did not return and that his eye-sight remained about the same.

"R. V. without glasses $^{6}/_{XXIV}$, with plus 1.5 D.=$^{6}/_{IX}$.

"L. V. without glasses $^{6}/_{XXXVI}$, with plus 1.5 D.=$^{6}/_{IX}$.

"Field of vision has never been carefully taken."

In a third case which was sent me by Dr. Chamberlain, of St. Paul, the treatment produced no beneficial results. This patient became discouraged after six weeks or two months treatment, and falling into the hands of "faith healers" discontinued treatment, so that I do not consider in view of the fact that the trouble was of long standing, that the treatment was given a fair trial in this instance. I subjoin notes of Dr. Chamberlain upon the case.

"X. Y., aged 46, general office in R. R. land department, came to me in 1890, complaining of a strained feeling about his eyes.

R. V. $^{20}/_{C}$. L. V. $^{20}/_{CC}$.

Myopic astigmatism of about two dioptries to each eye; this corrected gave him R. V.=$^{20}/_{XXX}$, but did not improve the left save, as he said, to brighten it up a little. His work being largely reading of correspondence and examining fine lines on the maps and fine figures in books, I prescribed rest in addi-

tion to change in his glasses, the latter he obtained but the former he did not take.

In giving his history, he said that six years previous while his eyes were undergoing an examination, he found that he had very little vision in his left eye, something he had not known before. The ophthalmoscope showed the left disc to be very pale and vessels reduced in size. The right disc, however, seemed nearly normal. He returned to his work and had no trouble with his vision until about June, 1890, when he returned to me saying that his vision was getting bad in the other eye. He had been working very hard and was reduced physically, so I advised immediate rest. The retina and optic disc were in an irritable and somewhat congested condition. After a month's rest, though physically improved, he could see absolutely no improvement in his vision, which at this time equaled part of $^{20}/_{XL}$ with the right eye, the optic disc being paler than normal, and the vascular condition being somewhat reduced. I put him upon potassium iodide and also strychnine, both hypodermically and by the mouth. I referred him to Dr. Riggs for electricity.

"Sharpness of vision slowly decreased. Sept. 20 it was only a guess at $^{20}/_{XL}$, September 30 it was only $^{20}/_{L}$, and by November was reduced to $^{20}/_{IX}$. About this time he passed out of my sight."

I am at present trying voltaic alternatives in a number of cases representing various forms of brain disease, but the experiments have not yet been sufficiently prolonged to justify me in recording any opinion as to results.

The stimulating affect of this current and its influence on nutrition is evident if one considers its physiological aspect. That the reversal of the polarity of the electrodes in its use is much more energetic than the simple closures, is very evident if one understands the nature of the phenomena.

De Watteville (*Medical Electricity* p. 108) says: "When the electrode on the nerve is alternately changed from anode to cathode, and from cathode to anode, a series of closure excitations are given, which fall alternately in the polar (when the

electrode becomes anodic) region respectively. Now in either case the excited region had just before been under anodic influence, and physiology teaches us that as we shall presently demonstrate on the human nerve, the instant the polarizing current ceases to flow the anodic region passes into a state of increased excitability. This augmentation is the more marked the longer the anodic influence has lasted. We see, therefore, how it is that voltaic alternatives act more powerful than in simple closures of the circuit, and that their action is intensified by previous current duration. We understand also why rapid reversals are the most effectual; for the positive modification after an electrotonus diminishes rapidly after the circuit has been broken; the longer the interval which elapses between the polar change of the electrode the less the hyperexcitability of the nerve will be, until it has returned to its normal state."

Althaus (*Medical Electricity* p. 225) emphasizes also the fact of the increase of excitability when the voltaic alternatives are frequently repeated.

It is to be hoped that such workers in this line as Dr. Webster Fox and his coadjutors will soon lay before the profession the results of their large experience. In this article I have only designed to be suggestive and to stimulate my confréres to investigation, that the true value of this therapeutic measure may be thoroughly ascertained. If in the use of voltaic alternatives has indeed been found the remedy for even a part of the cases of atrophy of the optic nerve, the fact cannot be too soon established or too widely known.—*N. Y. Med. Jour.*

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

THURSDAY, MARCH 9, 1893.

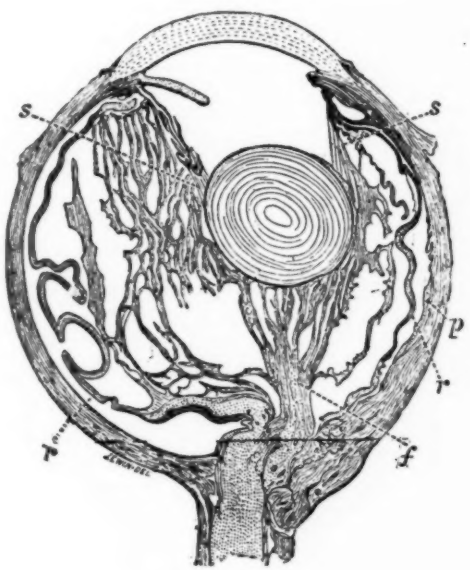
W. A. BAILEY, M. D., in the Chair.

Before beginning the ordinary business of the Society, the Chairman, in a few well-chosen remarks, alluded to the great loss the Society had sustained in the death of Dr. James Anderson, a former Secretary and valued member of the Society.

MICROPHTHALMOS.

Mr. Treacher Collins showed a series of lantern slides, illustrative of the changes he had found in three microphthalmic globes. Two of the three eyes had been obtained from a child who had died when four days old from congenital heart disease. In the left eye (see Figure) the lens was displaced backwards, being situated nearly in the centre of the globe. In the middle of the vitreous was a band (*f*) composed of elongated ceels and fibres, with bloodvessels amongst them; it passed from the posterior pole of the eye just below the optic disc to the back of the lens. Bands of fibres and cells, similarly situated, had been described by Hess, and Mr. Collins agreed with him that they were probably the result of a typical development of the intruding mesoblast, which should have formed vitreous. The displacement of the lens was due to this band of fibres and cells having kept it moored, while the anterior portions of the eye grew forwards, the ciliary pro-

cesses and fibres of the suspensory ligament becoming thereby greatly stretched. In this eye there was also a coloboma of the iris. In the right and left eye there was posteriorly below the optic nerve a protrusion due to a projection of retinal tissue through a gap in the sclerotic.



DESCRIPTION OF FIGURE.

Semi-diagrammatic section of the left eye of Case I.

(*s*) Suspensory ligament of lens stretched and attached to elongated ciliary processes.

(*r*) Retina, much folded.

(*f*) Fibrous tissue in centre of vitreous, holding lens back.

p points to pigment epithelial layer at the position where it ceased to be pigmented and where the choroid ended.

The third eye, which was removed from a lad; aged 18, had connected with it, in a similar position, two large cysts lined

throughout by degenerate retina. The cysts in this case, and the projections from the eyes in the other, had probably been caused by the protrusion of one of the folds, which are normally present in the human fœtal eye, through the ocular cleft and its sequestration in the surrounding mesoblast; a process analogous to the formation of dermoid cysts by the inclusion of a portion of cuticular epiblast in one of the branches or other fœtal clefts. A theory somewhat similar to the above has been propounded by Kundrat. In none of these eyes was there any indication that the changes found had resulted from intrauterine inflammation.

REMOVAL OF A CHIP OF STEEL FROM THE VITREOUS.

Mr. Tatham Thompson read notes of a case in which he had removed a large fragment of steel from the vitreous by means of the electro-magnet. Two peculiar points were mentioned in connection with the case. First the extraordinary track followed by the foreign body, which had passed through the upper lid almost at right angles to the skin surface, and, penetrating the sclerotic at 7 millimeters from the corneo-sclerotic junction, had apparently turned on its axis, as it was found to be standing vertically in the vitreous, with its long axis almost parallel with the lid surface, and its lower extremity resting on the retina embedded in lymph. The second point was the way in which the foreign body, which measured 14 millimetres by 2 millimetres, and weighed 0.037 gramme, had been tolerated, the patient not complaining of bad symptoms till a fortnight had elapsed. Three weeks after the accident the fragment was removed. A flap of tissue was raised at the outer side of the insertion of the inferior rectus tendon, an incision made in the sclerotic, and the fragment removed by means of the electro-magnet. The patient made a good recovery. Charts showing the field of vision before and after extraction, and the fragment of steel were shown.

REMOVAL OF ENLARGED LACHRYMAL GLANDS.

Dr. Sandford (Cork) read notes of the case of a farmer who came under his care for enlargement of both lachrymal glands to such an extent that the right eyelids were completely and the left almost completely closed. A large smooth painless swelling could be felt in the region of the gland in each orbit. The patient was in good health and had not had syphilis. There was some enlargement of the lymphatic glands in the neck, and hypertrophy of the lymphoid tissue in the pharynx. The lachrymal glands were removed, the left first and the right a month later. The result was restoration of the palpebral aperture on each side. Two years later the patient was in good health and had had no further ocular trouble. The growths on examination proved to be adenomata. Dr. Sandford referred to somewhat similar cases reported by Messrs. Adams Frost, Power and Snell.

FOREIGN BODY EMBEDDED IN THE EYE FOR FIVE YEARS. REMOVAL.

Dr. Sandford reported this case. The patient, a lad aged 16, had been struck in the eye by a needle five years previously. On examination a portion of a rusty needle was seen, one end being in corneal tissue and the other end in the lens, passing through the iris. There were evidences of former iritis, and the lens was opaque. V = p. l. The portion of needle, which measured half an inch in length, and the lens matter were removed. The eye made a good recovery from the operation, and vision of $^{6}/_{IX}$ and J. 2, with correction, was eventually obtained.

LIVING AND CARD SPECIMENS.

Mr. Power.—Case of Congenital Exophthalmos.

Mr. Lawford.—Peculiar Changes in Macular Region, possibly of traumatic origin.

Mr. Silcock.—Case of Conical Cornea.

Mr. Brailey.—Case of Doubtful Nature, with many of the symptoms of Glaucoma.

Dr. Abercrombie.—Post mortem specimens from a case of Proptosis and Intracranial bruit (reported in Trans., vol. x., p. 248).

NEWS.

POST-GRADUATE MEDICAL SCHOOL OF CHICAGO—WORLD'S FAIR ANNOUNCEMENT.

COURSE 5.—Five special courses of evening and morning lectures by prominent foreigners and Faculty. Eye and Ear, Nose and Throat, three evenings each week, from May 15, to July 1. Hermann Knapp, Henry D. Noyes, New York; Herman Krause, Berlin; Th. Heryng Warsaw, (August); Prof. Massei, Naples; Jonathan Wright, Brooklyn; J. O. Roe, Rochester; J. C, Mulhall, St. Louis; W. F. Coleman, Boerne Bettman, C. A. Wood, Frances Dickinson, B. M. Behrens, T. M. Hardie, F. D. Owsley, Geo. Morgenthau, Chicago.

Fees $10.00. Matriculation fee of $5 charged for all new students. Desirable seats in order of application may be reserved for course 5, and board secured not to exceed $10 to $12 a week for each member of party, by forwarding matriculation fee. For Bulletin No. 4, which gives all particulars, send to Dr. FRANKLIN H. MARTIN, Secretary,
Venetian Building, Chicago.

THE PAN-AMERICAN MEDICAL CONGRESS.

By arrangements with the committee at Rome, the date of the Eleventh International Medical Congress has been so appointed that those who attend the meeting of the Pan-American Medical Congress may subsequently attend the former. The Pan-American Medical Congress will adjourn on the afternoon of September 8; a steamship will sail from New York on the following day, going by the Azores and Gibraltar and en-

abling the tourist to reach Rome on the morning of September 20, where the Eleventh International Congress will be opened on the afternoon of September 24. It will thus be seen at a glance, that in the period usually allotted to a summer vacation, the medical tourist may spend a week at the World's Columbian Exposition, the next week at the Pan-American Medical Congress, the next week and-a-half with delightful companions in a voyage to the Mediterranean, the next few days in witnessing the sights of Rome, and the following week at the Eleventh International Medical Congress. Special reduced rates for members and their families are given both ways on the trip to Rome, particulars of which will be furnished on application to the Secretary-General, 311 Elm Street, Cincinnati, Ohio, who is also a member of the American committee of the Eleventh International Congress.

The best possible arrangements will be made with the excellent hotels with which the National Capital is abundantly supplied. The Committee of Arrangements will do its utmost to secure desirable rates and locations for members and their families. The headquarters of the Committee of Arrangements is at the Arlington Hotel, where communications may be addressed, either to Dr. Samuel S. Adams, Chairman, or Dr. J. R. Wellington, Secretary.

CHARLES A. L. REED, Secretary-General.

SELECTIONS.

ETIOLOGY OF OPHTHALMIA IN THE NEW BORN.*

BY H. V. WURDEMANN, M.D., OF MILWAUKEE, WISCONSIN.

Much has been written upon the subject of ophthalmia in new born infants, especially as regards prevention and treatment. To the teachings of Credé,[2] Valude[11] and others may be ascribed the lessened percentage of cases following their methods of prophylaxis. Individual experience on any subject, however well established, is of value, but I will limit my remarks to the etiology of the conjunctivitis of infants.

In many children the edges of the eyelids are slightly red for a few days after birth, and there may be a little sticky secretion which disappears under simple means, as washing with lukewarm water and vaseline. This condition should give rise to no uneasiness on the part of the attendant, but of course the case should be watched. Some infants contract acute catarrhal conjunctivitis which differs but little from that in adults, and likewise, in a small proportion of cases, may pass into a sort of follicular conjunctivitis. This is the milder form of ophthalmia which demands our attention in this connection. The other is that to which the term of blennorrhœa neonatorum may be properly limited. Some authors[93] arbitrarily divide this into two classes; the severer type in which the gonococcus of Neisser[6] is generally found, which has a tendency to increase in severity and invade the cornea, and a milder type

*Read at a meeting of the Milwaukee Medical Society, February 14, 1893.

in which a bacillus[3] (discovered by Weeks), is prominent among the micro-organisms, and which tends to recovery. However this may be, in my experience all cases in which there is a purulent discharge seemed alike in nature, and even where gonorrhæal infection was known, the cases differed in severity. I think that the majority of cases, if neglected, would tend to ulceration of the cornea, the immunity of others depending upon the resisting power of the tissues. In all instances various micro-organisms are found, and even in confessed cases of gonorrhœal infection the peculiar coccus of Neisser may be absent.[10]

Blennorrhœa neonatorum is one of the most fatal of diseases to vision. Horner[4] gathered statistics from different countries, finding that the inmates of blind asylums made sightless by this disease varied from 20 per cent. to 70 per cent.

Gentlemen, as you well know, vice and neglect may creep into the residence of the rich as well as into poverty's abode. The infant leaves the warm, dark and comfortable environment of its mother's womb for the cold and cheerless world, is received perhaps into the lap of luxury with modern aseptic precautions of the intelligent practitioner, or is tossed in its filth into a bundle of rags. Or mayhap, if born to parents of the working or middle classes, it may or may not be properly attended by a physician or midwife. Besides as a direct inheritance from its parents, the neglect or opposite extreme of ill-directed zeal on the part of the immediate attendants may cause such diseases as infantile eczema, bronchial or other lung troubles, otitis or ophthalmia.

The causes of the milder forms of conjunctivitis in infants are ascribed, as in adults, to either zymotic or chemical irritants, with the addition of special causes appertaining to the environment of the lying-in chamber or negligence of the attendant, as exposure of the child's eyes to glare of light while washing it, wiping face and eyes with soiled and rough towels, the entrance of meconium or urine, the use of poor soap, etc. The vernix caseosa is the natural protection of the child during birth, being particularly abundant about the creases of the

limbs, neck and face. In its journey through the genital passages of the mother it becomes well smeared with her secretions. By ill-directed efforts at cleansing these may be carried into the eyes, and even if not septic may give rise to some irritation. It is the concensus of opinion that nearly all of the severe cases are of gonorrhœal origin, arise from the morbid secretions of the mother. Inoculation with normal natal secretions has not given rise to the disease.[3 10]

All mothers suffering from gonorrhœa do not infect their new-born offspring, especially if due precautions have been observed by the attendant. Whatever may be the origin of both forms of the disease, the most frequent subjects are weakly children who are exposed to the debilitating effects of bad air, insufficient clothing, insufficient food; in fact among the poor, also premature infants. But are not the mothers of these children prone to leucorrhœa?[12]

The contagion usually occurs after birth, being commonly due to negligence or ignorance of the nurse in washing the infant, whose face and eyes may be cleansed (?) in the same water as that of the body and dried with the same cloth, the vernix being wiped away and the infecting material wiped in. Where the child is not washed at once, but left in its filth, smeared with lard, goose grease, skunk oil, angleworm oil or what not, the entrance of contagion is even more obvious. I was brought up to believe that *all* cases of ophthalmia in the new born might be ascribed to neglect on the part of the nurse or accoucheur. This is an extreme view, and I now think that infection may take place in the specific form at any time after the rupture of the membranes. Face presentations are particularly liable[10] where the element of contagion is present. Statistics on this point are difficult to obtain in private ophthalmic practice, thus but few notes will be found of the presentation in my account of cases.

The affection may occur the first moment that the child opens its eyes, even before birth in the genital passages or even in the uterus itself, as in a case reported by Nieden[7] of a child born in the membranes where the amniotic fluid was infected.

SIMPLE CONJUNCTIVITIS.

Number.	Name.	Occupation of Male Parent.	Reported Date of Beginning.	Age at First Consultation.	Duration after Consultation.	Attendant at Labor.	Supposed Cause.	Result and Remarks.
1	G.	Plumber.	3 day.	3 days.	2 weeks.	Physician.	Negligence in washing.	Health.
2	L.	Merchant.	2 weeks.	3 weeks.	2 "	"		"
3	D.	Merchant.	Birth.	3 days.	1 week.	"		Health (much vernix).
4	P.	Dentist.	"	3 "	2 weeks.	"		" " "
5	G.	Machinist.	2 day.	6 "	2 "	"	Negligence in washing.	Health (muco-purulent discharge).
6	F.	Physician.	Birth.	1 day.	2 "	"	Slight leucorrhea.	Two months later had follicular conjunctivitis.
7	M.	Saloon.	5 day.	7 days.	1 week.	"	Exposure to light.	Health.
8	P.	Coal.	3 "	5 "	4 weeks.	Midwife.	Negligence in washing.	Twins. Health.
9	P.	Coal.	3 "	5 "		"	Negligence in washing.	Twins. Child died 10th day.
10	S.	Dentist.	7 "	16 "	2 weeks.	Physician.	Exposure to light.	Six weeks later had follicular conjunctivitis.
11	K.	Drug Clerk.	8 "	10 "	2 "	"	Infection from nurse with dacrycocystitis.	Health.
12	H.	Clerk.	Birth.	2 weeks.	3 "	"		Health (muco-purulent discharge).

Number.	Name.	Occupation of Male Parent.	Reported Date of Beginning.	Age at First Consultation.	Duration after Consultation.	Attendant at Labor.	Supposed Cause.	Result and Remarks.
1	F.	Laborer.	4 day.	3 weeks. Ulcer R. cornea.	4 weeks.	Midwife.	"Whites" in mother.	Leucoma R. Clear L.
2	C.	Railway clerk.	2 "	2 weeks Ulcer both corneæ.		Physician.	Gonorrhœa in father	Patient was taken to another physician after I had given an unfavorable prognosis.
3	A.	Illegitimate child of a city official.	2 "	2 weeks.	2 weeks.	"	Leucorrhœa in mother.	Health.
4	H.	Laborer.	4 "	4 weeks. Ulcer R. cornea.	4 "	Midwife.	Gonorrhœa in father	Collapse and staphyloma R. Leucoma L.
5	G.	Illegitimate child of servant.	4 "	4 weeks. Ulcer both corneæ.	4 "	"	"Whites" in mother	Leucoma both corneæ.
6	S.	Illegitimate child of country girl.	2 "	4 days. Ulcer both corneæ.		"	Gonorrhœa in mother.	Child died in third week. Collapse of both eyes.
7	W.	Laborer.	6 "	6 weeks. Ulcer L. cornea.	6 weeks.	"	Gonorrhœa in father	Leucoma L. Clear R.
8	C.	Laborer.	2 "	2 weeks. Ulcer R. cornea.	8 "	"	" "	" " "
9	D.	Plumber.	2 "	4 days.	4 "	Physician.	" "	Face presentation; both corneæ clear; child died few weeks later of pneumonia.
10	B.	Laborer.	2 "	5 weeks. Ulcer both corneæ.	7 "	Midwife.	" "	Leucoma R. Collapse L.
11	K.	Illegitimate child of newly arrived immigrant.	2 "	4 days.		"	" "	Seen but once.
12	Hospital Case.	Illegitimate child of "kept" woman.	Birth.	4 "		Physician.	"Whites" in mother	L. O. A. Presentation. Child died in third week. Collapse of both eyes.
13	Hospital Case.		1 week.	8 "	2 weeks.	"	Contagion carried by nurse from No. 12	Health.

In three of my cases (delivered by physicians noted for the care bestowed upon their accouchements), where the gonorrhœal element was known to exist and where the usual prophylactic precautions were instituted, the infection undoubtedly occurred before birth.

The disease may likewise arise some days or even weeks after birth, from the fingers of the nurse, mother or child, towels, etc., soiled with the maternal secretions. Where the infant occupies the same bed with the mother, soiled bedclothes may be a carrier of the contagion.[4] It must be remembered that gonorrhœa may only be propagated by actual contact of the virus in a fresh state with a mucous membrane. Yet round-about methods of infection are known, as house flies[4] being the carriers from one infant or from soiled clothes to another's eye. The picture of a sick infant with its face covered with flies is common in the hovels of the South in hot weather. In hospitals, the attendants, be they ever so careful, may infect other children. Thus special nurses should be retained and the cases isolated. The virus seems attenuated by being carried from one child to another, the resulting cases being lighter as a rule.

The original factor in this disease is the father's lapse of virtue by which he acquired a specific urethritis. With him it is advisable to speak plainly, to handle the subject with bare hands, to make him acquainted with the results of his iniquity, in order to inspire in his mind sufficient interest in the case that efficient treatment may be given the child. Of course this disease is more common among the lower classes, who are prone to neglect the disease until too late, or to follow out the cleansing and other treatment in a perfunctory sort of a way, unless their minds are sufficiently impressed with the responsibility of the case. Many children are brought to the physician after the cornea has collapsed through ulceration, the case being looked upon by the midwife as a "cold in the eyes," and treated by poultices or other uncleanly applications.

It has been said that a non-specific vaginitis in a perfectly irreproachable individual may produce a typical gonorrhœa in

the male. Likewise an ophthalmia may result from leucorrhœa in the mother. However this may be, the gonococcus of Neisser is found[9] in the great majority of cases of malignant ophthalmia. The origin of some of these might perhaps be traced as in the following, which is vouched for by a friend of mine as occurring in his practice:

The father had been apparently cured of gonorrhœa six months before marriage and the child was born after over a year of married life, he himself remaining free from urethritis and his wife being apparently well. The child developed a severe case of ophthalmia neonatorum which ran the usual course. When the child was nearly well the father applied to the same physician with acute urethritis, denying *in toto* all exposure. The man had probably never been cured of his first gonorrhœa. This brings up the question of the liability of the gonococcus and its retention for indefinite periods within the vaginal folds of the mother without the production of an appreciable amount of vaginitis. This may be so, as some women are apparently immune to the ravages of the gonococcus. Note some women of the town who are apparently free from gonorrhœa, and yet who occasionally infect some of their visitors, while the majority escape.

I append an abstract of twenty-five recent cases of conjunctivitis in new born infants seen in private practice, from which some of my statements have been deduced, others being duly authenticated.

The small number of cases of catarrhal conjunctivitis in proportion to those of the graver disease may be remarked, as the lighter form is of common occurrence, while the blennorrhœa is relatively rare. This may be explained by the fact that most of the latter ultimately apply to the specialist for treatment, while the lighter forms being readily subdued by the attendant or by household remedies, or getting well without treatment, do not usually call in a physician for the eye affection. In eleven of the cases of infantile catarrhal conjunctivitis the labor was attended by a physician, and in the others by a midwife. All of these cases were seen by wish of

the medical attendant. The cause of three cases was believed to be due to the exposure of the child's eyes to light; one to infection from a nurse who had dacryocystitis; five to carelessness of the nurse in washing the child, etc.; in one the mother had a mild leucorrhœa, and in the other three no cause could could be ascribed. Two of these cases were muco-purulent, and two others suffered later from follicular conjunctivitis. In all the catarrhal symptoms yielded to treatment within a few days and at no time presented any corneal complications. All of these cases were in the better class of patients.

It will be noticed that the majority of the cases of blennorrhœa neonatorum occurred in children whose parents were of the lower walks of life. Five of these children were illegitimate. In seven cases the father acknowledged having had gonorrhœa within several months before the child's birth, and in one case the mother. In four the mother said she had "whites," and as three of these children were illegitimate, gonorrhœa was possible. In the thirteenth case the contagion was probably carried by the nurse who was attending No. 12 in a neighboring bed. The majority of these were delivered by midwives, presumably without proper precautions. In three of the cases (Nos. 3, 9, 12) delivered by physicians, prophylactic measures *a la Credé* did not afford immunity. Two of the children died of marasmus after loss of both eyes. One of the others was so depleted by the long course of suppuration that it succumbed to pneumonia within a few days of the commencement. Ulceration occurred in fourteen eyes, of which the vision in nine was subsequently lost. The majority of the cases of blennorrhœa applied for treatment after ulceration of the cornea had set in, and when the parents had lost faith in the ability of the midwife to handle the affection.

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[2]Credé "Die Verhütung der Augenenzündung der Neugeboren," Arch. f. Gynækol., xvii.
[3]DeSchweinitz, "Diseases of the Eye," 1892.
[4]Fuchs, "Augenheilkunde," 1889.
[5]Horner, "Krankheiten des Auges im Kindesalter." Hdbh. d. Kinderkrankheiten, 1879.
[6]Neisser, Centralbl. f. Med. Wissench., xxviii, 1879.
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[11]Valude, Ann. d'oculist., cvi.
[12]Walton, "Diseases of the Eye," 1875.

REVIEWS.

MANUAL OF CLINICAL OPHTHALMOLOGY.—By F. Hansell, M.D., and J. H. Bell, M. D.; with 120 Illustrations. Philadelphia: P. Blackiston, Son & Co., 1892. Price, $1.75.

This very neat little volume which, as the authors state, is intended as a brief review of the anatomy, physiology, refraction and common diseases of the eye, fulfills very well what it is meant to be. It has a great many good illustrations and in type and make-up is very recommendable.

A HANDBOOK OF THE DISEASES OF THE EYES AND THEIR TREATMENT.—By H. R. Swanzy, A.M., M.B., F.R.C.S.I. Fourth Edition with Illustrations. Philadelphia, P. Blackiston, Son & Co., 1892. Price, $3.00.

The rapidity with which this fourth edition of Swanzy's text-book has followed the third one shows plainly how practical and popular it is. The new edition is considerably enlarged and new illustrations have been added. It is a very valuable book alike to the student and the practitioner.

These books may be obtained of J. H. Chambers & Co., 914 Locust St., St. Louis.